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Masaaki Oka

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EXAMINER

RICHER, AARON M

ART UNIT

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2628

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/575,529	Applicant(s) OKA, MASA AKI	
	Examiner AARON M. RICHER	Art Unit 2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 October 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 and 16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6 and 10-13 is/are rejected.
- 7) ☒ Claim(s) 5, 7-9 and 16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed October 10, 2008 have been fully considered but they are not persuasive.
2. As to claim 1, applicant argues that Furasawa does not disclose automatically detecting a connected sequence of pixel drawing regions by applying an edge extraction filter, noting that Furasawa includes an operator manually locating a general area of an edge to be processed. Examiner notes, however, that the operator is not actually detecting the connected sequence of pixel drawing regions making up the edge. Rather, in Furasawa, this is done by an edge-detection filter (analogous to the claimed invention's edge extraction filter) as is noted in col. 4, line 64-col. 5, line 10. While a user may indicate an area to search for contour in Furasawa, the actual contour detection is automatically performed by a computer.
3. Applicant's arguments with respect to claim 4 have been considered but are moot in view of the new ground(s) of rejection.
4. It is also noted that in response to applicant's arguments, examiner has clarified the motivations for combination in claims 3 and 6.

Specification

5. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: The term "computer-readable medium" found in claims 12 and 13 does not have antecedent basis in the specification. It is suggested that this be

Art Unit: 2628

changed to a "computer-readable recording medium" to match with the "recording medium" term used in the specification.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 4, 11, and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. Claim 4 recites "selecting out a predetermined number of orientation detection filters each representing a distinguishing feature that is *closer* to the distinguishing feature of the connected sequence of pixel drawing regions" (emphasis added). It is unclear what the filter features are "closer" than to the features of the drawing regions. It is noted that claim 5 does further define how the features are "closer" and so claim 5 and its dependents do not appear to be indefinite.

9. Claims 11 and 13 recite similar limitations but use the term "close". It is further unclear what filters would correspond to "close" filters, since close is a relative term which renders the claim indefinite. The term "close" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claim Rejections - 35 USC § 102

Art Unit: 2628

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 1, 2, 4, and 10-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Furusawa et al. (US Pat. No. 5,050,227).

12. In re claims 1, 10, and 12, Furusawa et al. discloses an image processor for use in drawing an image to a memory having a two dimensional matrix of pixel drawing regions (Fig. 1, 9), each of the pixel drawing regions representing a single pixel in the image, said image processor comprising: a plurality of relative orientation detection filters each representing a distinguishing feature of a relative orientation of an edge segment to be drawn to the memory (Fig. 8, 81a-d), drawing means for drawing the image to the memory or a buffer having the same structure as the memory (fig. 1, S10), detection means for automatically detecting a connected sequence of pixel drawing regions making up an edge in the image drawn by said drawing means by applying an edge detection filter (Fig. 2, S6; col. 4, line 64-col. 5, line 10), and detecting the relative orientation of the connected sequence of pixel drawing regions by means of selecting out one relative orientation detection filter representing the distinguishing feature that is closest to the distinguishing feature of the connected sequence of pixel drawing regions in question (Fig. 2 S6-S7), and smoothing means for smoothing a pixel value of each pixel in the connected sequence of pixel drawing regions on the edge using smoothing

Art Unit: 2628

coefficients (Fig. 2, S8) the smoothing coefficients being either computed depending on the relative orientation detected by said detection means or obtained from outside.

13. In re claim 2, Furusawa et al. discloses that a plurality of relative orientation detection filters is a two-dimensional matrix of predetermined orientation coefficients, the orientation coefficients including zero orientation coefficients each having a value of zero and non-zero orientation coefficients each having a value other than zero, the non-zero orientation coefficients being aligned relative to each other in a predetermined direction (Fig. 4a-d), said detection means performing convolution of all orientation coefficients contained in said relative orientation detection filters (Fig. 8), with each pixel value of the connected sequence of pixel drawing regions making up the edge, said detection means then selecting out one relative orientation detection filter for which the convolution result in a single direction exceeds a predetermined threshold value and yields the largest result (Column 5, lines 43-55), as the relative orientation filter having the distinguishing feature that is closest to the distinguishing feature in the subject direction (Fig. 4a-d, shows the direction they are relative to).

14. In re claims 4, 11, and 13, as best understood, see the rejection to claim 1. The claims further recite selecting out a predetermined number of relative orientation detection filters each representing a distinguishing feature that is closer to the distinguishing feature of the connected sequence of pixel drawing regions. Furusawa discloses this, at Fig. 2 S6-S7 and col. 5, line 66-col. 6, line 55. It is noted that, in the Furusawa reference, the predetermined number of filters is "one" since a single filter that best matches an orientation is selected out and used. Claim 4 further discloses

Art Unit: 2628

performing interpolation with the relative orientations specified by the selected relative orientation detection filters, which is further disclosed by Furusawa at col. 6, lines 39-55. This portion of Furusawa discusses a weighting and adding operation using the relative orientation filter, which reads on an interpolation.

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

17. Claims 3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Furusawa et al. (US Pat. No. 5,050,227) in view of Hiroshige et al. (US Pat. No. 7,167,595).

18. In re claims 3 and 6, Furusawa et al. discloses the smoothing means has a plurality of smoothing filters each containing predetermined smoothing coefficients, the smoothing coefficients including zero smoothing coefficients each having a value of non-zero smoothing coefficients each having a value other than zero, said smoothing

Art Unit: 2628

filter being linked to one of said relative orientation detection filters in such a manner that the non- zero smoothing coefficients being arranged in the same pattern as the non-zero orientation coefficients in said relative orientation detection filters (Fig. 6A-D), said smoothing means identifying, in response to the selection of the relative orientation detection filter by said detection means, the smoothing filter that is linked to the selected relative orientation detection filter, performing convolution of the smoothing coefficients of the identified smoothing filter individually with each pixel value of the connected sequence of pixel drawing regions making up the edge, and replacing a target pixel value in the connected sequence of pixel drawing regions with the convolution result, thereby smoothing file focused pixel value (Column 6 lines 38-56). It is noted that Furusawa et al. does not disclose that the smoothing coefficients are not zero. However, Hiroshige et al. discloses smoothing filters with coefficients of zero (fig. 8) and also orientation filters that are linked to them and have a similar arrangement of zero coefficients (fig. 9, theta-g is slope or orientation information, see in particular the matrices that are /259, /252, and /251 and compare with the n=1 matrix in fig. 8) . It would have been obvious to one of ordinary skill in the art to replace the non-zero only coefficients of Furusawa et al. with the zero and nonzero coefficients of Hiroshige et al. matched between smoothing and orientation filters in order to implement the functions jointly, which has the advantage of quickly removing noise without blurring (col. 1, lines 38-67) as taught by Hiroshige.

Conclusion

Art Unit: 2628

19. Claims 5, 7-9 and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to AARON M. RICHER whose telephone number is (571)272-7790. The examiner can normally be reached on weekdays from 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kee Tung can be reached on (571) 272-7794. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Aaron M Richer/
Examiner, Art Unit 2628
1/4/09